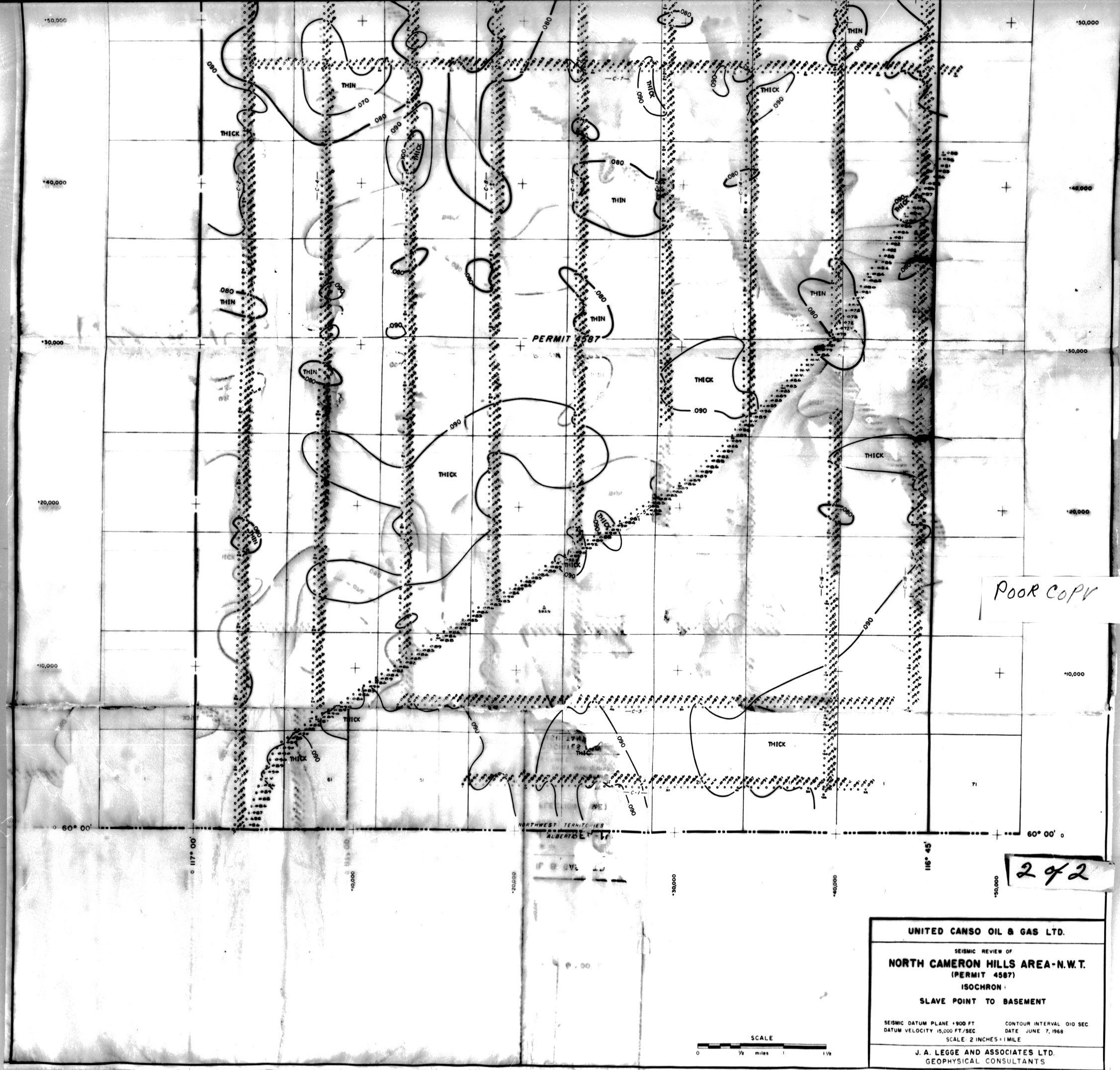




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UNITED CANSO OIL & GAS LTD.

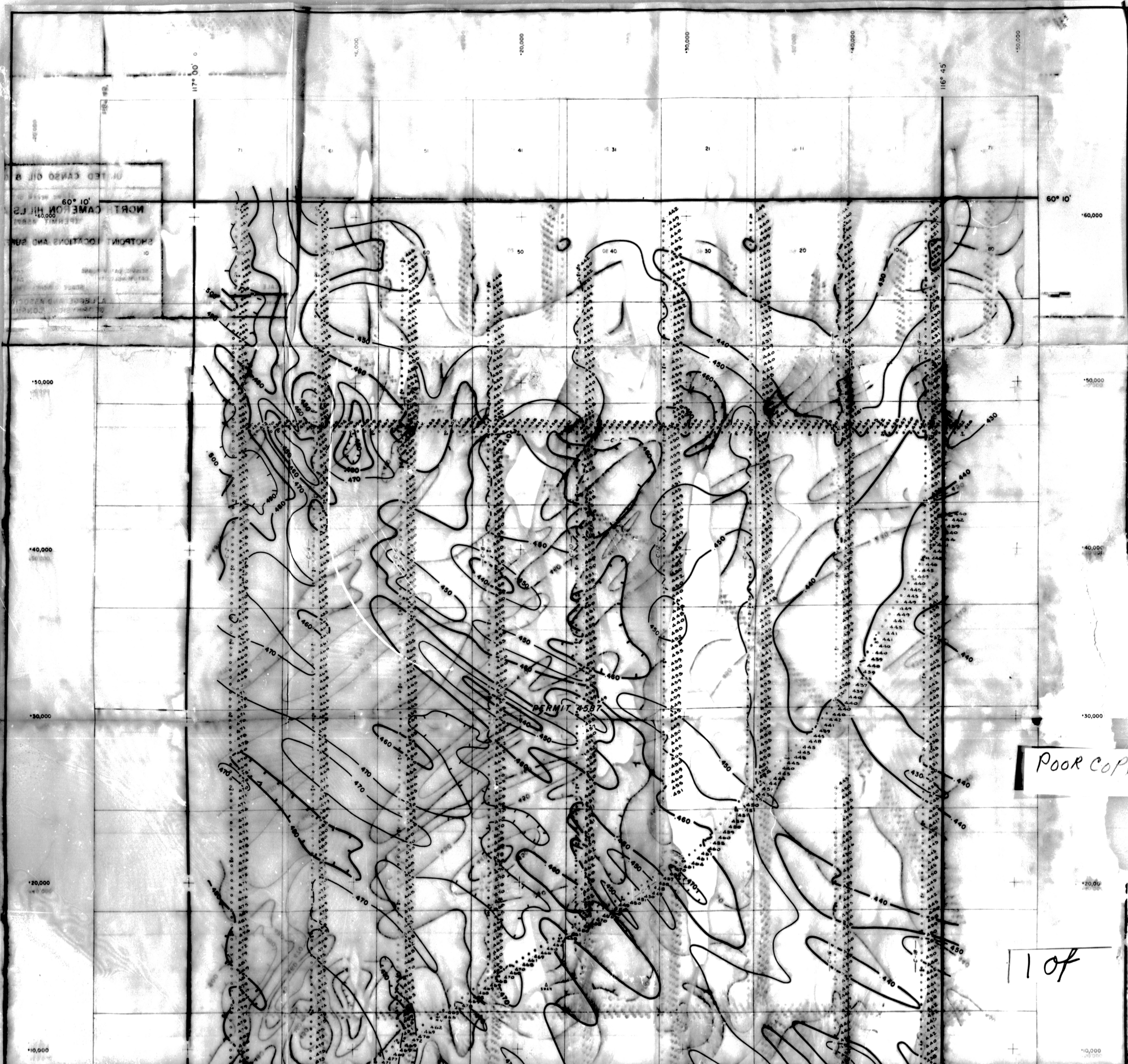
SEISMIC REVIEW OF  
NORTH CAMERON HILLS AREA-N.W.T.  
(PERMIT 4587)

ISOCHRON  
SLAVE POINT TO BASEMENT

SEISMIC DATUM PLANE +900 FT  
DATUM VELOCITY 15,000 FT/SEC  
CONTOUR INTERVAL 0.10 SEC  
DATE JUNE 7, 1968  
SCALE 2 INCHES = 1 MILE

J. A. LEGGE AND ASSOCIATES LTD.  
GEOPHYSICAL CONSULTANTS

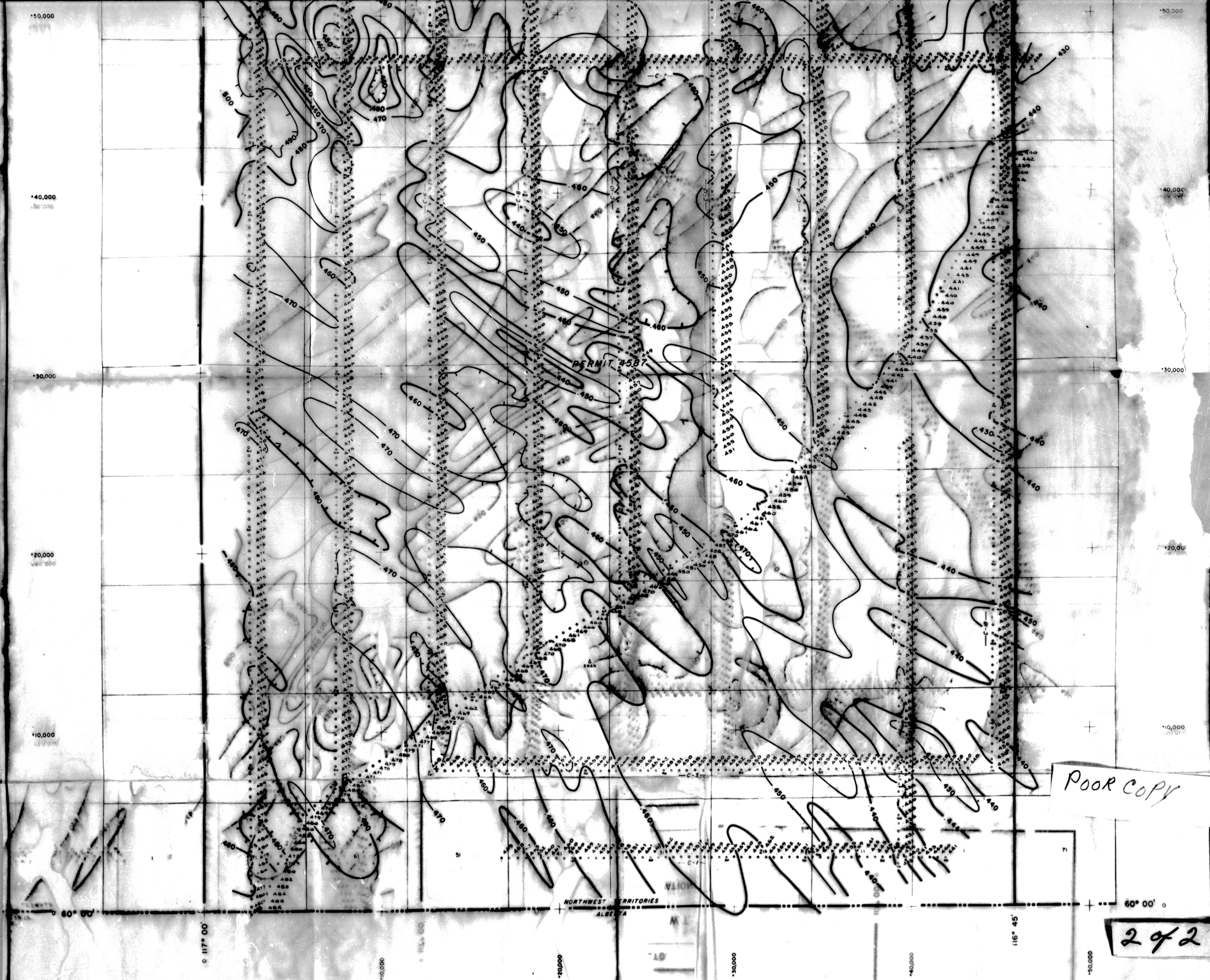




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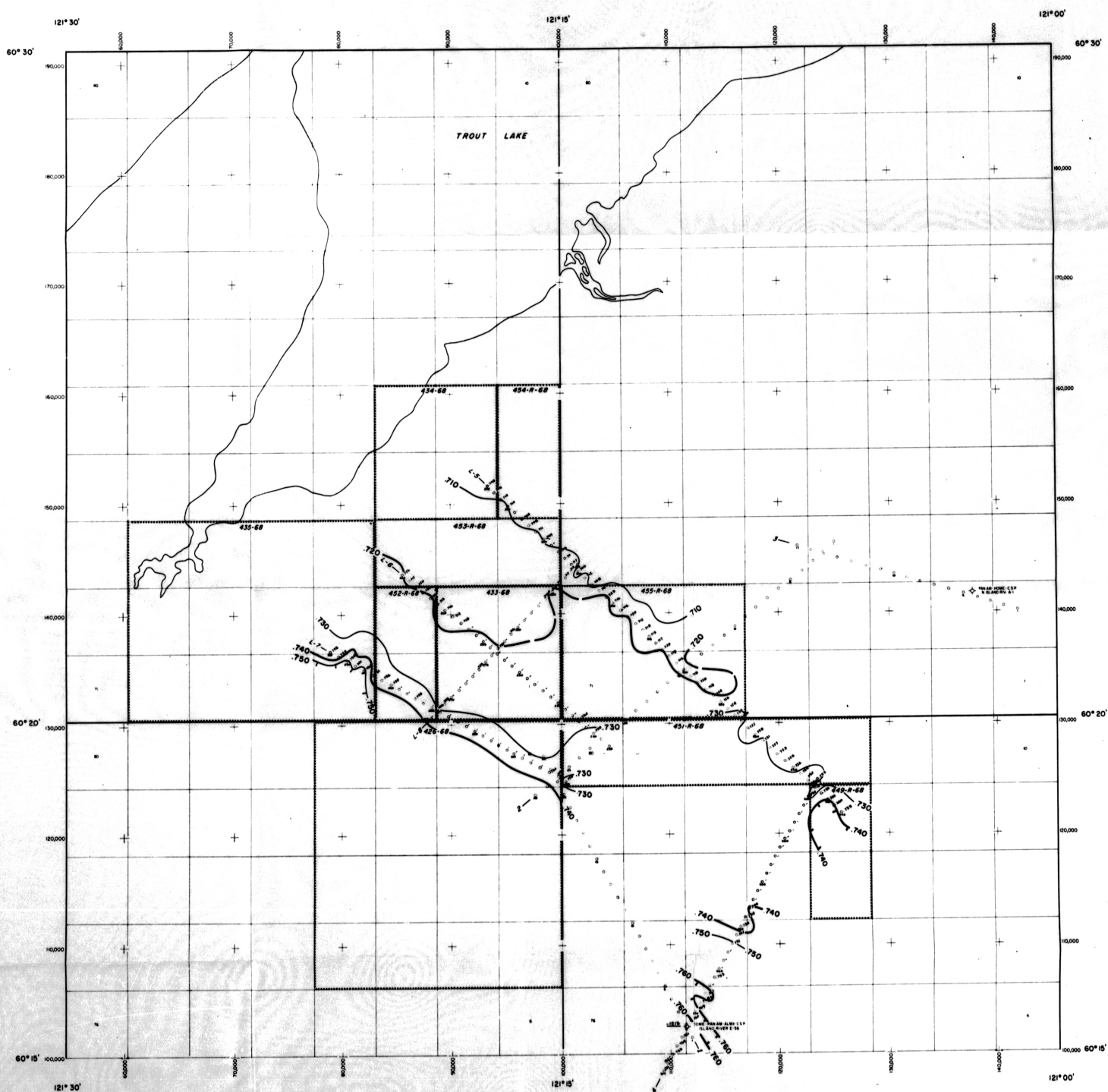


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2 of 2

UNITED CANSO OIL & GAS LTD.	
SEISMIC REVIEW OF	
NORTH CAMERON HILLS AREA, N.W.T.	
(PERMIT 4587)	
SLAVE POINT (REFLECTION TIME)	
SEISMIC DATUM PLANE + 900 FT.	CONTOUR INTERVAL 100 SEC.
DATUM VELOCITY 15,000 FT/SEC.	DATE: JUNE 7, 1961
SCALE: 2 INCHES = 1 MILE	
J. A. LEGGE AND ASSOCIATES LTD.	
GEOPHYSICAL CONSULTANTS	





CANADA SOUTHERN PETROLEUM LTD.

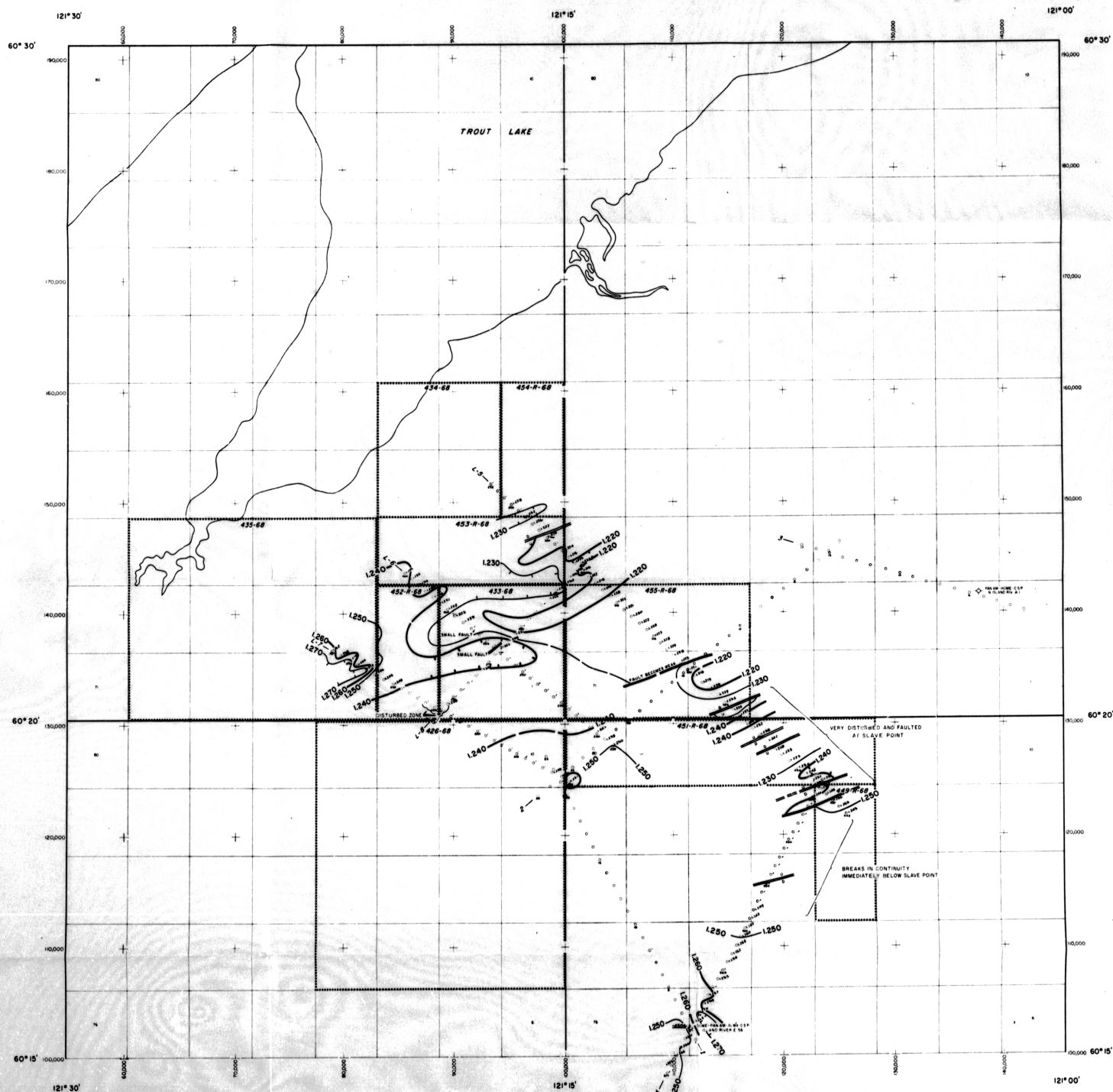
TROUT LAKE - N. W. T.

FIRST DEVONIAN LIMESTONE  
(REFLECTION TIME)

SEISMIC DATUM PLANE: 10000 FT. CONTOUR INTERVAL: 0.10 SEC.  
DATUM VELOCITY: 9000 FT./SEC. DATE: MAY, 1970  
SCALE: 1 IN. = 4000 FT.

J. A. LEGGE AND ASSOCIATES LTD.  
GEOPHYSICAL CONSULTANTS





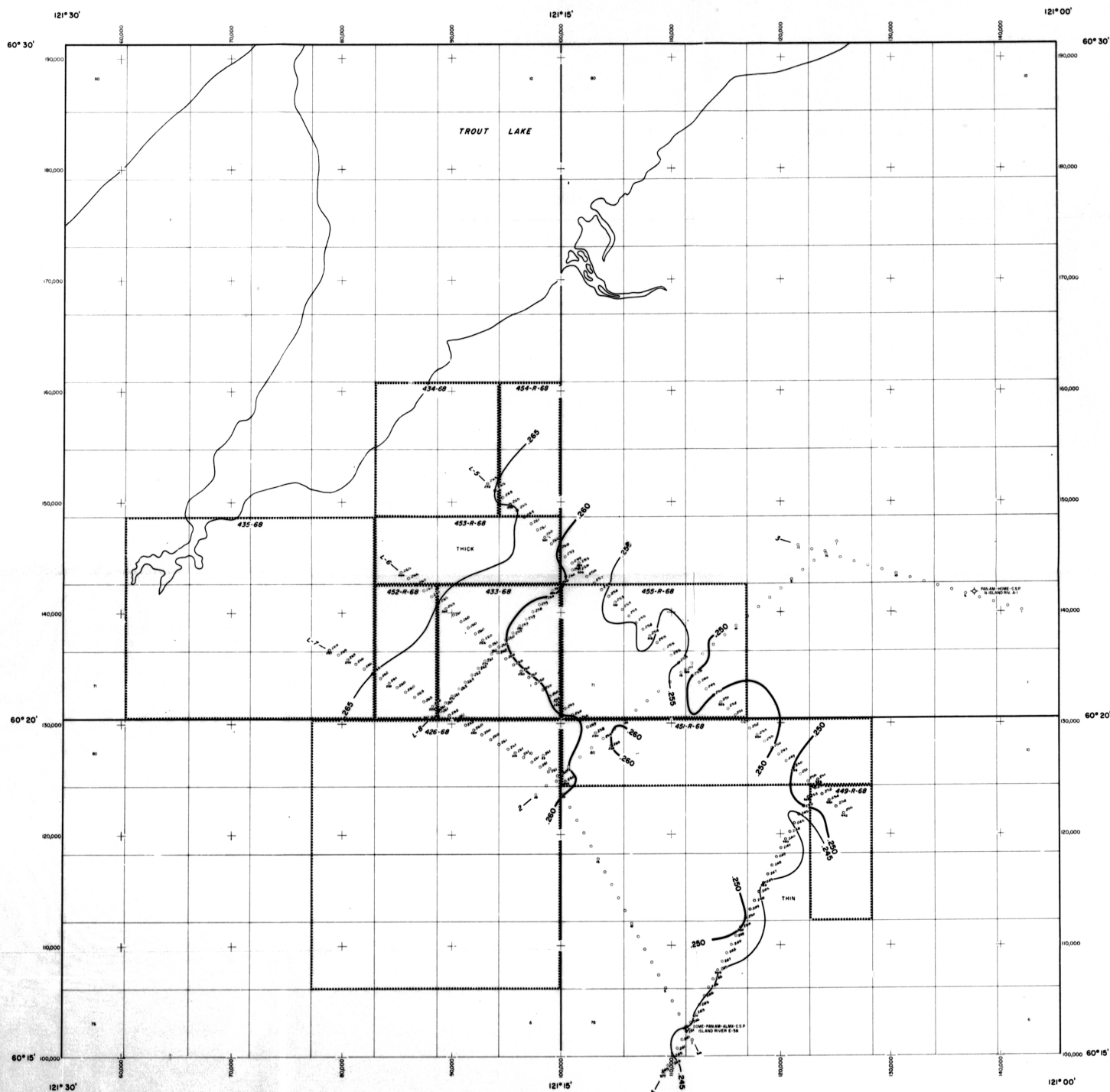
CANADA SOUTHERN PETROLEUM LTD.

TROUT LAKE - N.W.T.

SLAVE POINT  
(REFLECTION TIME)

SEISMIC DATUM PLANE: 2000 FT. CONTOUR INTERVAL: 0.10 SEC.  
DATUM VELOCITY: 9000 FT./SEC. DATE: MAY, 1970  
SCALE: 1 IN. = 4000 FT.

J. A. LEGGE AND ASSOCIATES LTD.  
GEOPHYSICAL CONSULTANTS



CANADA SOUTHERN PETROLEUM LTD.

# TROUT LAKE - N. W. T.

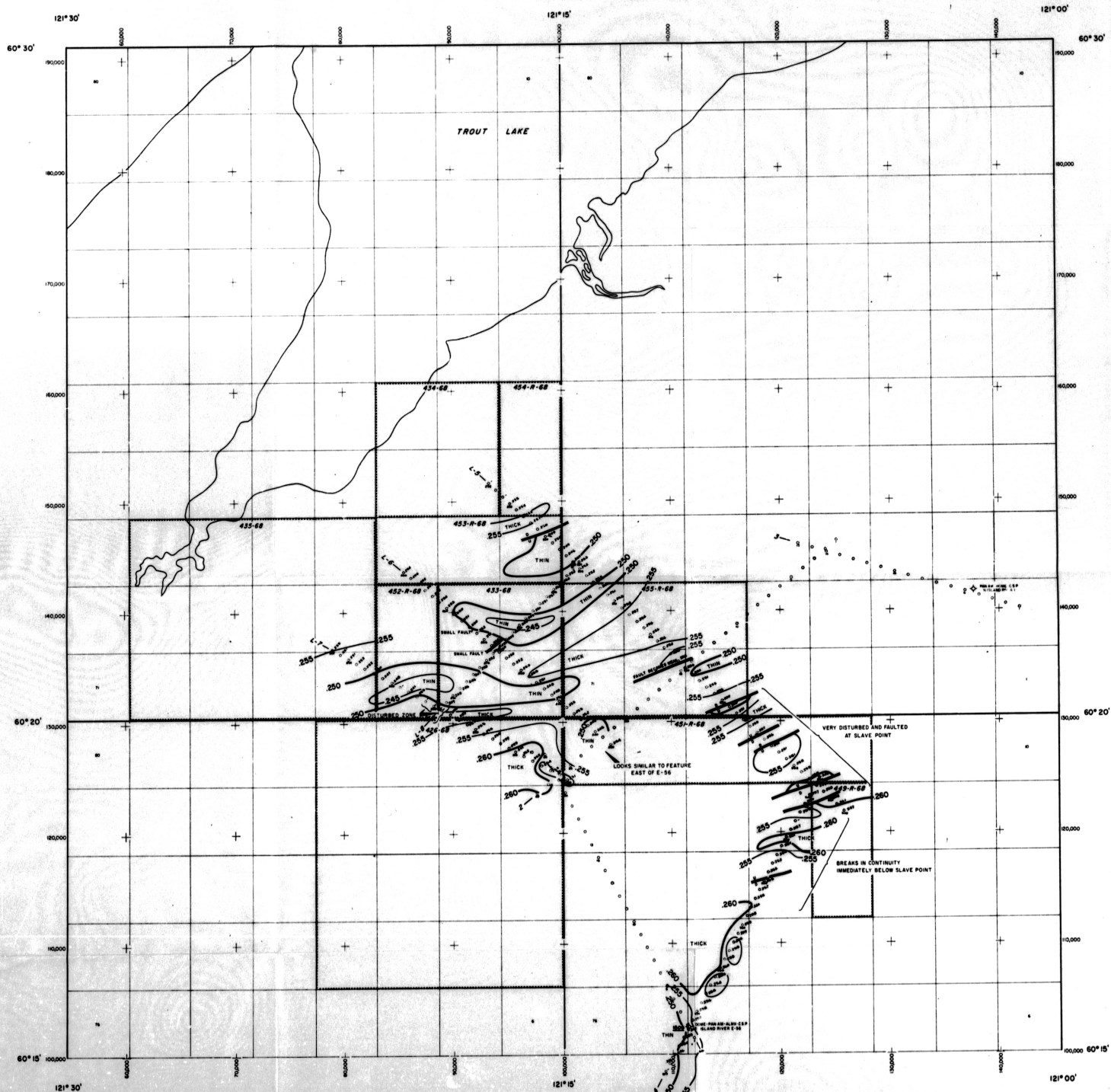
ISOCHRON:  
FIRST DEVONIAN LIMESTONE  
TO JEAN MARIE

SEISMIC DATUM PLANE: CONTOUR INTERVAL: 200 SEC.  
DATUM VELOCITY: DATE: MAY, 1970.

SCALE: 1 IN. = 4000 FT.

J. A. LEGGE AND ASSOCIATES LTD.  
GEOPHYSICAL CONSULTANTS





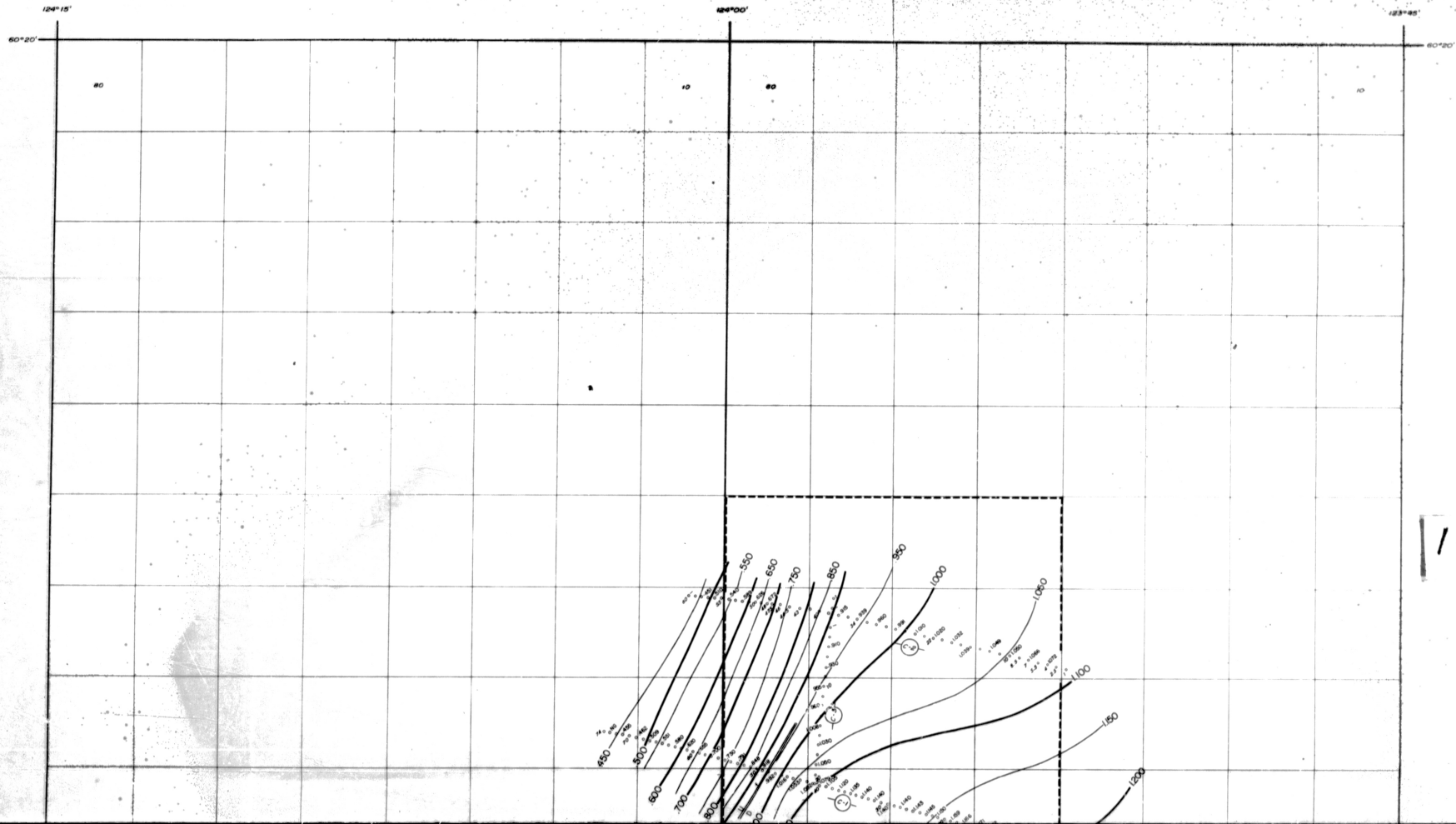
CANADA SOUTHERN PETROLEUM LTD.

# TROUT LAKE - N.W.T.

ISOCRON:  
JEAN MARIE TO SLAVE POINT

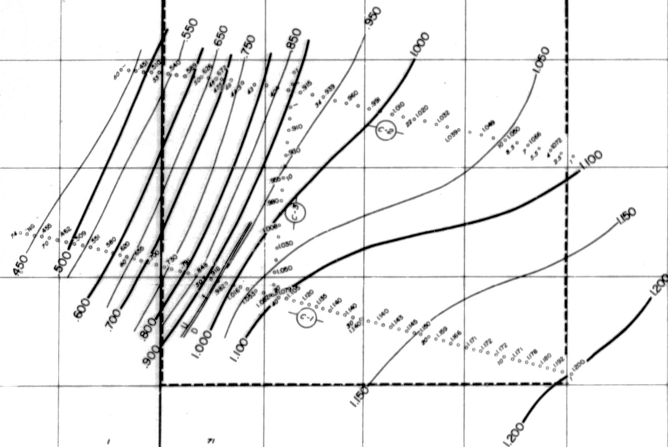
SEISMIC DATUM PLANE: 505 SEC.  
DATUM VELOCITY: 4000 FT./SEC.  
SCALE: 1 IN. = 4000 FT.  
DATE: MAY, 1970.

J. A. LEGGE AND ASSOCIATES LTD.  
GEOPHYSICAL CONSULTANTS



107





CANADA SOUTHERN PETROLEUM LTD.

EX-PERMIT 1006 - NWT  
PERMIAN

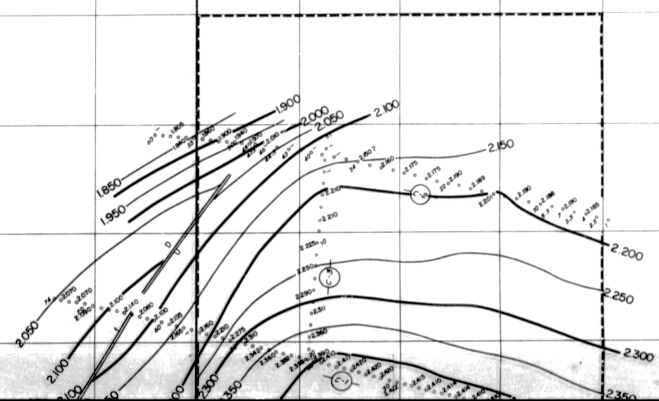
SEISMIC DATUM PLANE +1400  
DATUM VELOCITY 10,000/sec  
CONTOUR INTERVAL 0.050secs  
JUNE 1972

SCALE 1 inch = 4000 feet

COMER & WILSON LTD  
GEOPHYSICAL CONSULTANTS

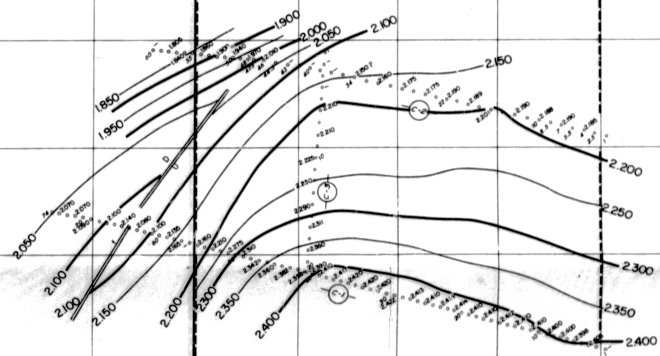
292

124°15' 124°00' 123°45' 60°20' 10 80 10 80



1 of





CANADA SOUTHERN PETROLEUM LTD.

EX-PERMIT 1006 - NWT

NAHANNI

SEISMIC DATUM PLANE +1400

DATUM VELOCITY 10,000/SEC

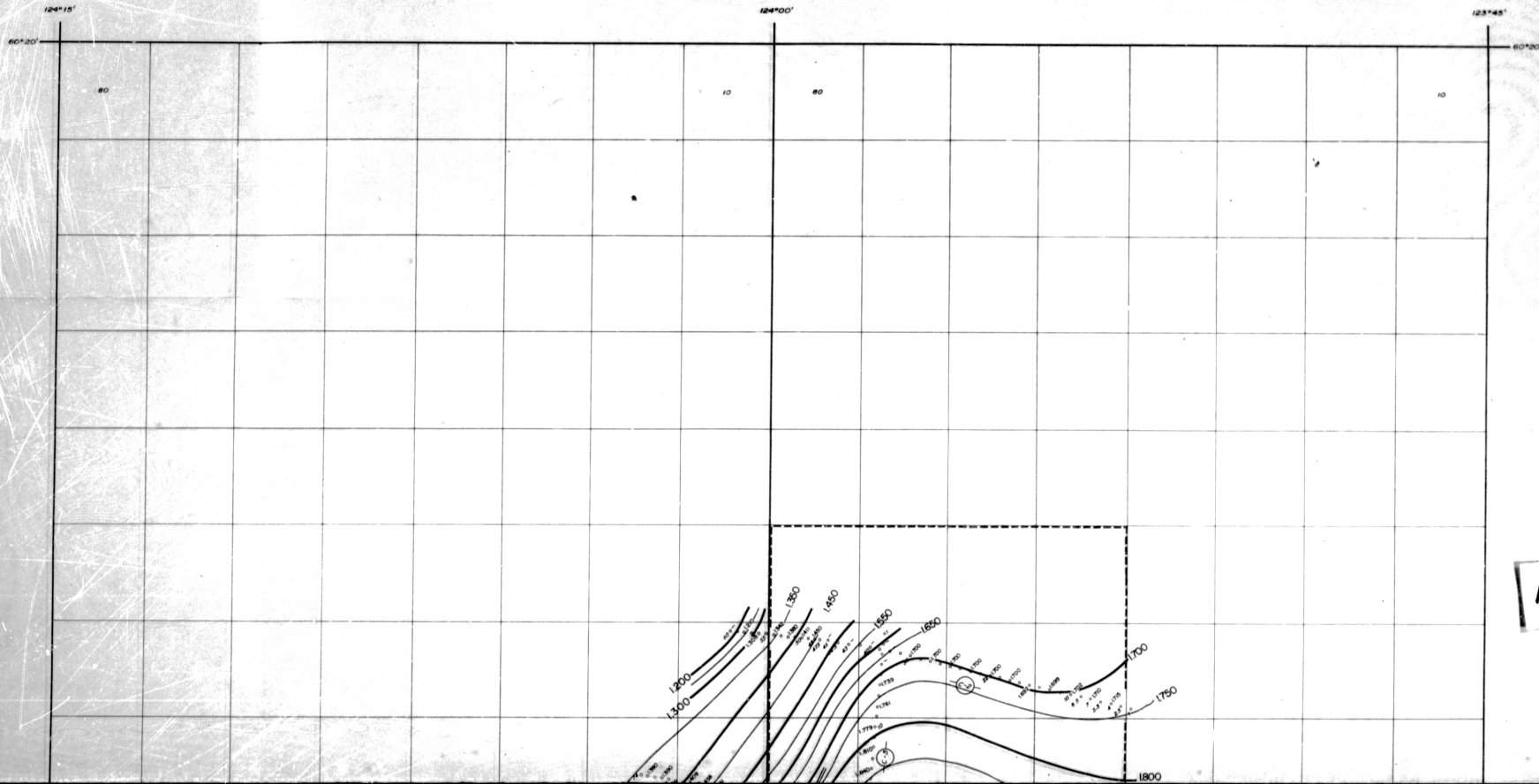
CONTOUR INTERVAL 0.051/SEC

JUNE 1972

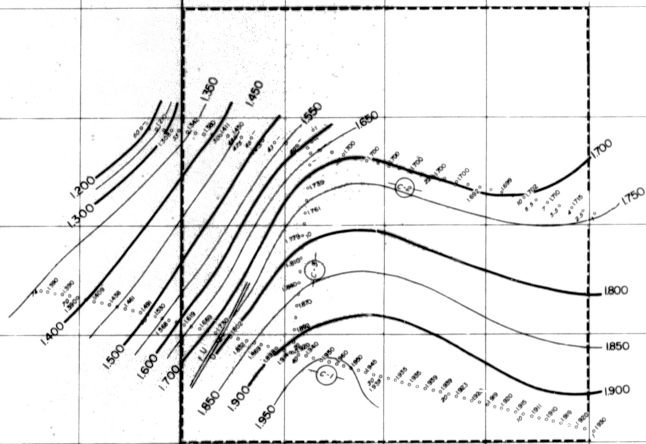
SCALE 1 INCH = 4000 FEET

COMER & WILSON LTD  
GEOPHYSICAL CONSULTANTS

292



107



CANADA SOUTHERN PETROLEUM LTD.

EX-PERMIT 1006 - N.W.T.  
TOP DEVONIAN

SEISMIC DATUM PLANE -1400  
DATUM VELOCITY 10000/msec

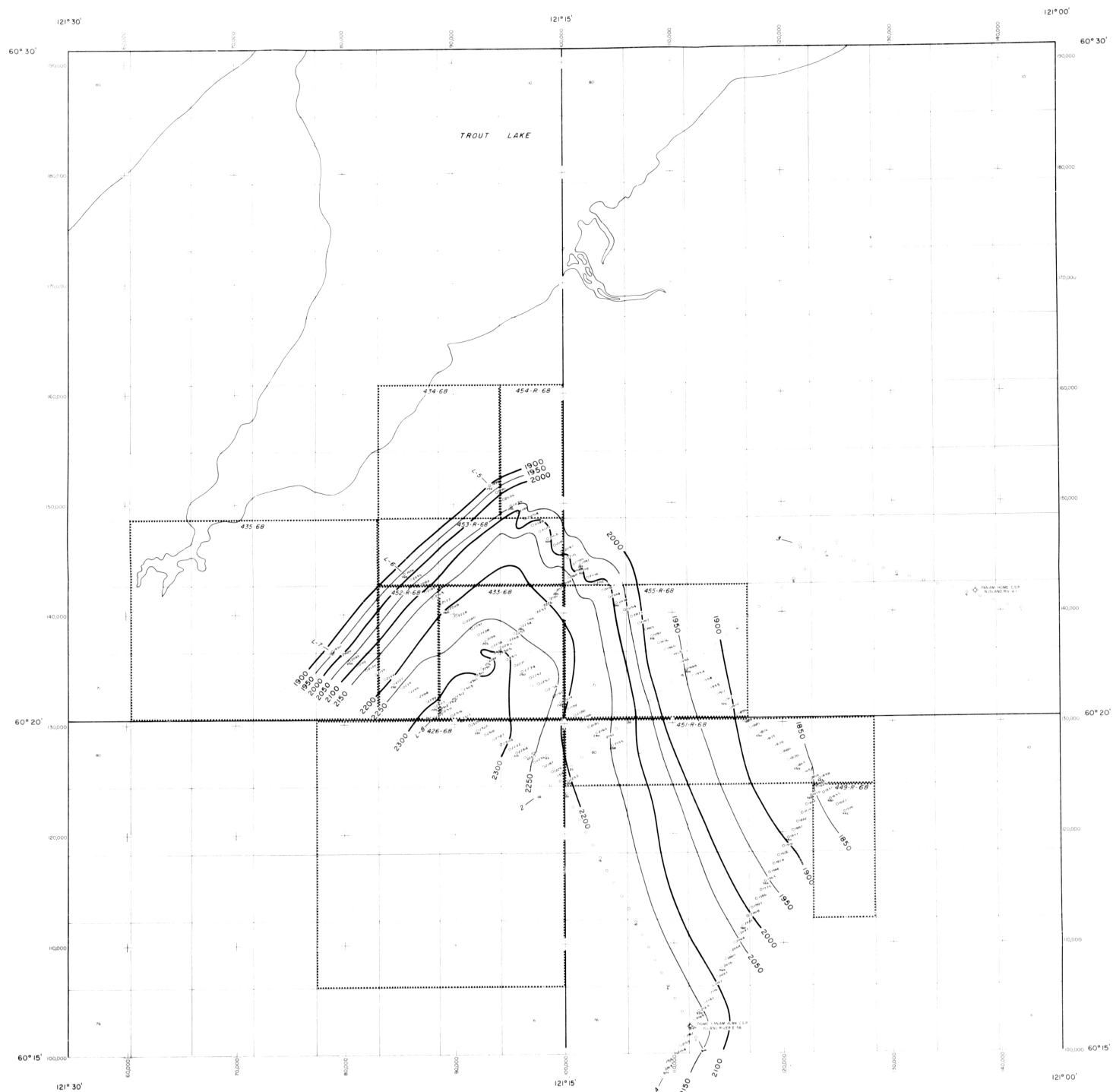
CONTOUR INTERVAL 0050 msec  
JUNE 1972

SCALE - 1 inch = 4000 feet

COMER & WILSON LTD.  
GEOPHYSICAL CONSULTANTS

292





CANADA SOUTHERN PETROLEUM LTD

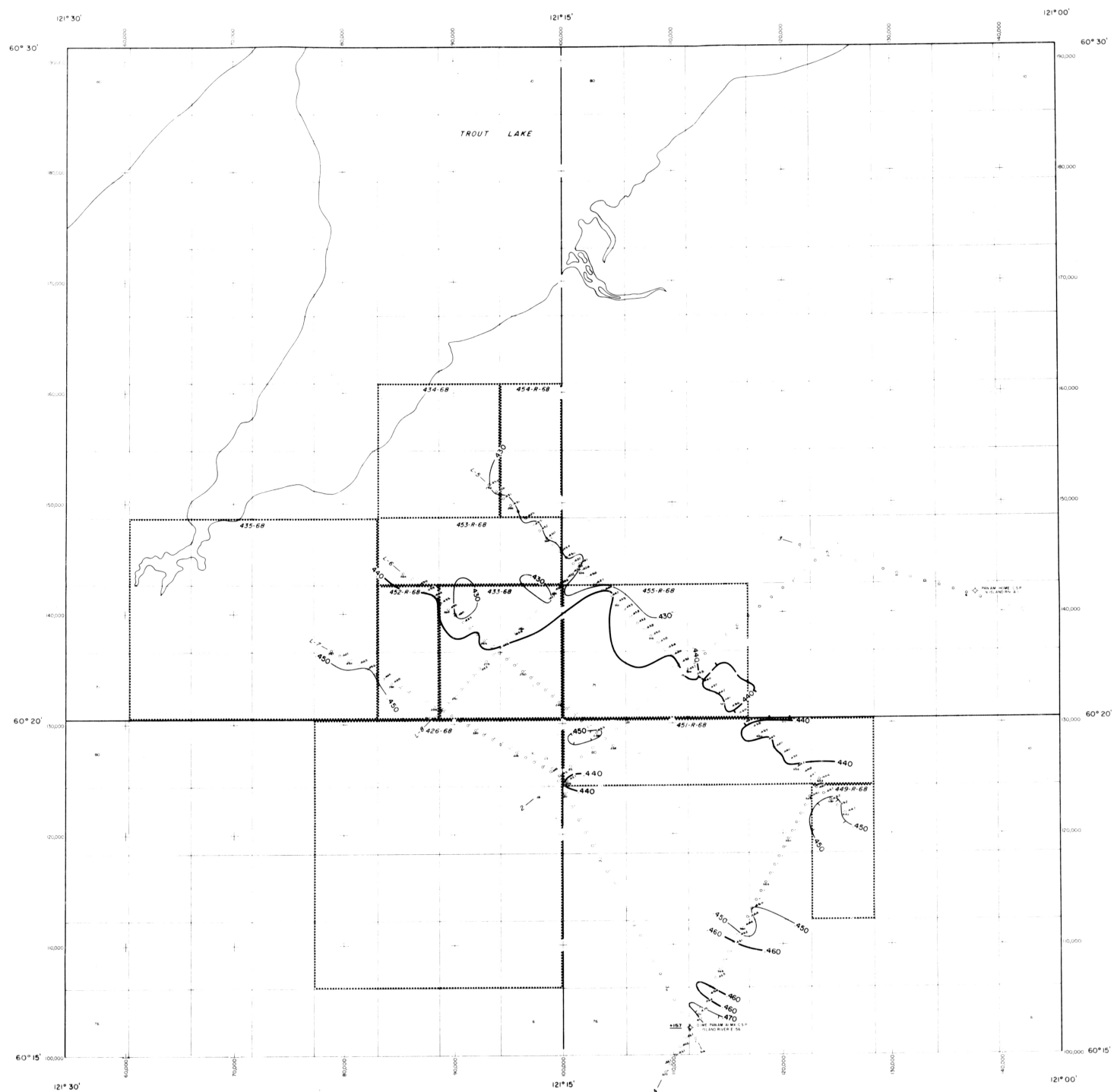
TROUT LAKE - N.W.T.

SURFACE ELEVATION

GEOMIC DATUM PLANE DATUM VELOCITY

SCALE 1" = 4000 FT

J.A. LEGGE AND ASSOCIATES LTD.  
GEOPHYSICAL CONSULTANTS



CANADA SOUTHERN PETROLEUM LTD

TROUT LAKE - N. W. T.

MISSISSIPPIAN  
(REFLECTION TIME)

SEISMIC DATUM PLANE - 2000 FT. CONTOUR INTERVAL - 100 SEC.  
DATUM VELOCITY - 9000 FT/SEC. DATE MAY, 1970  
SCALE 1 IN = 4000 FT

J. A. LEGGE AND ASSOCIATES LTD  
GEOPHYSICAL CONSULTANTS



352-6-4-8

*Ottawa*

**REPORT ON A SEISMOGRAPH SURVEY**

**IN THE**

**TROUT LAKE AREA, N.W.T.**

**FOR**

**CANADA SOUTHERN PETROLEUM LTD.**

**CALGARY, ALBERTA**

**MAY, 1970**

*Approved for  
Geo Science Div. Index*

**J. A. LEGGE AND ASSOCIATES LTD.**

**GEOPHYSICAL CONSULTANTS**

**CALGARY, ALBERTA**

352-6-4-8

CAN Southern

Abstracted for  
Geo-Science Data Index  
Date \_\_\_\_\_





REPORT ON A SEISMOGRAPH SURVEY  
IN THE  
TROUT LAKE AREA, N. W. T.  
FOR  
CANADA SOUTHERN PETROLEUM LTD.

Field work carried out by:  
UNITED GEOPHYSICAL COMPANY OF AMERICA  
In March, 1970

LEASE NUMBERS: 426-68, 433-68, 434-68, 435-68  
449-R-68, 451-R-68, 452-R-68, 453-R-68, 454-R-68  
455-R-68

PROJECT NUMBER 352-6-4-70-1  
REPORT WRITTEN IN MAY, 1970

by  
J. R. WILSON, P. GEOPH.  
of  
J. A. LEGGE AND ASSOCIATES LTD.  
GEOPHYSICAL CONSULTANTS  
CALGARY, ALBERTA.

Abstracted for  
Geo-Science Data Index

Date \_\_\_\_\_

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6. Results and Interpretation	6
7. Summary and Conclusions	7
II. MAPS: (in pocket) Scale 1 inch = 4000 feet.	
1. Surface Elevation	
2. Mississippian (Reflection Time)	
3. First Devonian Limestone (Reflection Time)	
4. Slave Point (Reflection Time)	
5. Isochron: First Devonian Limestone to Jean Marie	
6. Isochron: Jean Marie to Slave Point.	



## INTRODUCTION:

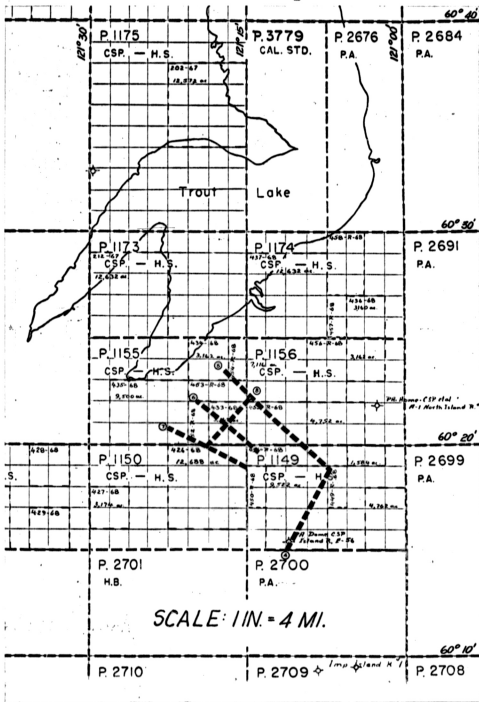
The Trout Lake Area is situated at the southern end of Trout Lake in the Northwest Territories at approximately  $60^{\circ}25'$  N and  $121^{\circ}10'$  W.

The program for the seismograph survey was laid out to evaluate lease group L-11 which consists in this area of the leases enumerated on the title page.

The field work was conducted by United Geophysical Company of America between March 2 and March 8, 1970 and consisted in total of 27.03 miles of 300% common depth point shooting. Flattened record-sections were prepared by CDP Computer Data Processors.

Geologically, the prospect is situated on a large Slave Point carbonate mass, the north flank of which cuts across the north end of Trout Lake. Immediately to the east is a shale embayment which extends south into British Columbia. The purpose of the survey was to map the Slave Point and also to see if it would be possible to recognize and trace occurrences of Keg River porosity similar to that encountered in the Dome et al Island River E-56 well.

The surface map shows the prospect to be on the top of a broad hill dotted with small lakes and covered by fairly heavy bush and small trees.



STATISTICAL DATA:

- 1) Dates: Mobilization date of seismic crew - February 23, 1970  
Date moved to this prospect - March 1, 1970  
Date recording commenced - March 2, 1970  
Date recording completed - March 8, 1970  
Date vehicles released - March 8, 1970

- 2) Production:
- |                       |       |
|-----------------------|-------|
| Miles shot            | 27.03 |
| Shots taken           | 175   |
| Shotpoints            | 165   |
| Days worked           | 7     |
| Average holes per day | 23.57 |
| Down days             | nil   |

- 3) Equipment:

(a) One complete wheel mounted seismograph crew consisting of the following:

- 1 Recording truck
- 2 Shooting truck
- 2 Cable trucks
- 1 Survey truck
- 1 Party Manager's truck
- 1 Supply truck
- 6 Drill trucks
- 6 Water trucks
- 2 Spare water trucks
- 1 Shop truck



(b) One wheel mounted camp consisting of:

- 1 Kitchen unit with diner
- 1 Utility trailer with shower and toilet
- 4 Sleeper trailers
- 1 Light plant trailer

(c) Three bulldozers, two D-7s and one D-6.

4) Personnel:

- 1 Supervisor
- 1 Party Manager
- 1 Observer
- 1 Junior Observer
- 2 Shooters
- 2 Surveyors
- 6 Drillers
- 8 Drill Helpers
- 2 Cable helpers
- 2 Rodmen
- 1 Supply driver
- 1 Mechanic
- 2 Spare water truck drivers
- 1 Cook
- 1 Cook's helper
- 1 Camp attendant.

5) Survey:

A transit survey was carried out and latitudes and departures calculated. Origin of survey was the Dome et al Island River E-56 as surveyed by Little, Longstaff and Associates of Fort St. John, B.C. and reported to be  $60^{\circ}15' 24.07''$  N and  $121^{\circ}11' 13.69''$  W. Vertical control was based on the ground elevation of 2183 ft. at the same well.

- 6) Conditions: The temperature averaged near  $0^{\circ}$  during the survey with scattered snow flurries and some sunny periods. No particular problems were caused by either weather or terrain.
- No radio contact with the outside was possible from the camp location at any time.

#### FIELD PROCEDURES:

Continuous split spread profiling was employed using the following parameters:

Amplifiers	SIE PT-100
Tape Unit	PMR 20 FM
Filter on Tape	1/16 - 100 cycles
Geophones	Geospace Digital 14 cycle 9 phones over 75 ft.
Spread	2530-110-0-110-2530 220 ft. group interval 300% stack
Hole Spacing	880 feet - 2 holes 70 feet apart
Shooting Depth	45 feet
Charge size	Variable $2\frac{1}{2}$ or 5 lbs. each hole.

#### DATA PROCESSING:

The 300% stacked record-sections were prepared by CDP Computer Data Processors and flattened at the First Devonian Limestone reflection. The following steps were followed in the processing:

1. NMO removal
2. Digital filter 13-18/55-60
3. Trace Muting
4. Statics (flat to First Lime at 0.800 sec.)
5. Stack (300%)

6. Time Variant scaling
7. Wiggle trace, variable area display on film.

#### RESULTS AND INTERPRETATION:

A sonigram and a borehole compensated sonic log from Dome et al Island River E-56 were used to identify six reflections on the seismograms. These were: Mississippian, First Devonian Limestone, Tetcho, Redknife, Jean Marie and Slave Point. In addition, an attempt was made to recognize seismically the Keg River porosity at the E-56 well and to mark any similar occurrences at other locations.

As well as preparing the two isochron maps: First Devonian Limestone to Jean Marie and Jean Marie to Slave Point, we have attempted to present the structural picture of the Mississippian, First Lime and Slave Point horizons. Unfortunately, the drift thickness is such that at a large number of the shothole locations the first arrival plots showed no break over to a high velocity and no drift correction could be computed. These shotpoints have been left without values on the structure maps.

All seismograms were corrected to a level datum of 2,000 feet above sea-level using a datum velocity of 9,000 feet per second. Delay times were computed when data was available using the observed near-surface velocity which varied between 6,000 and 7,000 feet per second.

Both the Mississippian and First Devonian Limestone structure maps show dip in a direction a little west of south with the First Lime exhibiting a steeper rate.

The interval First Lime to Jean Marie thickens in a westerly direction while the Jean Marie to Slave Point maintains a fairly constant thickness except for local variations over Slave Point topography.

The Slave Point carbonate mass is broken by many faults and disturbed areas and these locations have been shown on both the Jean Marie to Slave Point isochron and the Slave Point structure maps. However, the attempt to recognize and map Keg River porosity was not too successful. On Line 4 at the E-56 well, dips were seen in the Keg River zone which could be interpreted as the edge of a reef. These dips, together with a higher Slave Point, make up an anomaly slightly west of the well-site which, it now appears, would have been a better location.

One other anomaly which looks similar was noted at the southeast end of Line 6 where a slight Slave Point high is accompanied by a character change in the reflections immediately below.

The remainder of the disturbances as noted on the map seem to be fault controlled. These have resulted in several high trends but none which could clearly be interpreted as the result of possible reefing at the Keg River level.

#### SUMMARY AND CONCLUSIONS:

The mapped interval Jean Marie to Slave Point has given us a good picture of Slave Point topography which has been borne out by the Slave Point structure map in those places where data was available.

Many faults and disturbances are evident in the Slave Point reflection and most of these are coincident with dips at the Keg River level. As a result it was not possible to pin down any good anomalies which would be strongly suggestive of Keg River reefing as opposed to Keg River faulting.



The known occurrence of a small tongue of reef at the Dome et al Island River E-56 well on the east flank of a Slave Point high with a character change immediately below the Slave Point suggests the possibility that the well was located a little too far east and might have encountered a more favourable reef build up one quarter mile to the southwest.

The only other really similar anomaly was noted at the southeast end of Line L-6 where a high Slave Point and underlying changes could be the result of a small Keg River reef.

The remainder of the anomalies are so obscured by faulting that a reef interpretation is not possible.

Respectfully submitted,  
J. A. LEGGE AND ASSOCIATES LTD.

May, 1970

  
\_\_\_\_\_  
J. R. Wilson, P. Geoph.

22-14-37  
017

CANADA SOUTHERN PETROLEUM LTD.  
REFLECTION SEISMIC REPORT  
EX. PERMIT 1006  
JUNE, 1972

COMER & WILSON LTD.

REPORT ON A  
REFLECTION SEISMIC SURVEY  
OF

EX-PERMIT 1006 Y.T.  
60° 10' N. LAT. & 124° W. LONG.

FOR

CANADA SOUTHERN PETROLEUM LTD.  
CALGARY, ALTA.  
JUNE 1972



COMER & WILSON LTD.  
GEOPHYSICAL CONSULTANTS  
CALGARY, ALTA.

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Conclusion and Recommendations	3

### II) APPENDIX A - OPERATIONS REPORT

#### III) ENCLOSURES (Maps 1" = 4,000')

Permian  
Top Devonian  
Nahanni



## INTRODUCTION

The Ex-Permit 1006 prospect is located near 60° 10' N. Lat. & 124° W. Long. in the general Beaver River Area on the Yukon and Northwest Territories border. Previous work immediately to the southwest by Canada Southern in conjunction with Dome and Amoco in 1965 had led to the drilling of Beaver River 1-27 a shut-in gas well. The purpose of this short program was to determine the position of the acreage with respect to the major structural features in the area.

## FIELD OPERATIONS

The field operations were carried out by Century Party 32 between March 1 and March 10, 1972. A complete field report by Century is attached as Appendix A. As noted, the program was originally designed to be shot as 600% coverage, however due to closing of the pipeline right-of-way, the access road, it was modified to 400% in part to ensure completion.

## DATA PROCESSING

Data Processing was carried out by G.S.I. in Calgary. Stacked structural sections were prepared corrected to a datum of 1400' ASL with a correction velocity of 10,000'/sec. Normal delay time weathering corrections were derived for each shotpoint and interpolated for all geophone positions. After application of the preliminary corrections an automatic static program was applied to refine the stack.

## INTERPRETATION

Reflection identifications were made using the Beaver River I-27 velocity survey as a starting point. The upper events are strong and well defined, however the Nahanni is still extremely weak. This was noted on the earlier 100% work, it was hoped that the stacking would alleviate this problem but the improvement is marginal.

Time structure maps are submitted for three horizons:

- 1) Permian
- 2) Top Devonian
- 3) Nahanni

The first two are reliable, the Nahanni map is somewhat speculative.

All horizons show that the acreage is located on the east flank of a major anticlinal feature with the west ends of the lines showing some flattening as though they are approaching the crest. Minor normal faulting (down to the east) is shown on all horizons at shotpoint 50 on Line C-1. It is likely that the same type of fault is present on Line C-2 but is masked by the zone of no data between shotpoints 37-43.

The thrust fault at shotpoint 63 on Line C-1 at the Nahanni level is questionable.

## CONCLUSIONS AND RECOMMENDATIONS

The present shooting has shown that the acreage is located on the east flank of a major structural feature, thus the western portion of the block is the most favorable for hydrocarbon accumulation. Additional work will be necessary to tie the structural picture to the existing wells, both north and south of the subject area.

Respectfully submitted,  
COMER & WILSON LTD.,

RLC/iy

R. L. Comer  
R. L. Comer P. GEOPH.

APPENDIX A

OPERATIONS REPORT

ON

REFLECTION SEISMOGRAPH SURVEY

OF

NORTHWEST TERRITORIES  
EXPLORATION PERMIT 1006 AREA

60° 13' North & 123° 56' West

FOR

CANADA SOUTHERN PETROLEUM LTD.

BY

CENTURY GEOPHYSICAL CORPORATION OF CANADA

PARTY 32

MARCH, 1972

# APPENDIX A

OPERATIONS REPORT

ON

REFLECTION SEISMOGRAPH SURVEY

OF

NORTHWEST TERRITORIES  
EXPLORATION PERMIT 1006 AREA

60° 13' North & 123° 56' West

FOR

CANADA SOUTHERN PETROLEUM LTD.

BY

CENTURY GEOPHYSICAL CORPORATION OF CANADA

PARTY 32

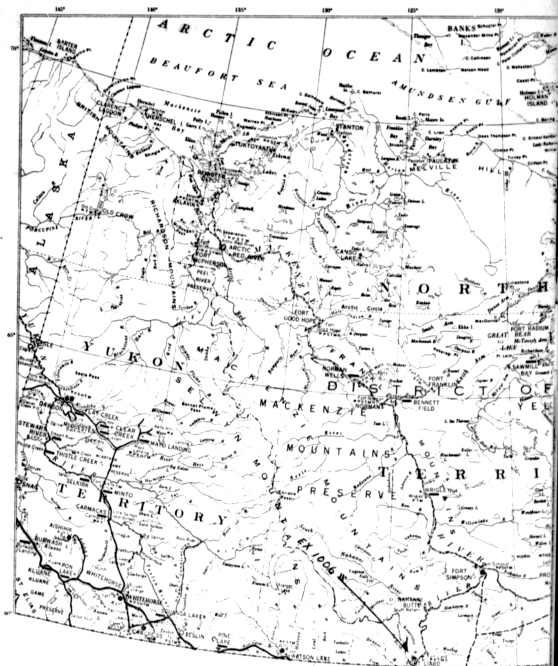
MARCH, 1972



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# SUMMARY OF PROJECT PARAMETERS

AREA:	Exploration Permit 1006	PROJECT NO.:	5-72N
PERMIT NO:	72B-095		
SURVEY:	Bench Marks:	North Beaver River Well 1-27	
	Spread Length:	2640-220-0-220-2640	
	Station Interval:	220 Feet	
	Line Numbers:	C1, C2 & C3	
	Shot Point Numbers:	Started with S.P. 1 on each line	
	Permit Fees:	None	
DRILLING:	Number of Drills:	2 Conventional, 1 Auger	
	Drilling Conditions:	Fair	
	Hole Depth:	60 Feet	
SHOOTING:	Charge Size & Depth:	10 lbs. @ 60 Feet	
	Number of Holes		
	Per Shot Point:	Single	
RECORDING:	Instruments:	DFS-III, 21 Track, 24 Trace	
	Sample Rate:	2 Ms.	
	Record Length:	4 Seconds	
	Gain Mode:	Binary	
	Gain Rate:	Medium	
	Filters:	12 (36) - 124	
	Geophones:	Mark L-10's - 10 Hz. - 9 @ 20' intervals	
COMPUTING:		Not Required	
PROCESSING:		Not Required	

## A. INTRODUCTION

The Exploration Permit 1006 project area is located in the extreme southwest corner of the Northwest Territories at  $60^{\circ} 13'$  North and  $123^{\circ} 56'$  West, approximately 135 miles northwest of Fort Nelson, British Columbia.

Field operations began with bulldozing on March 1st, 1972, drilling on March 3rd, and recording on March 5th. The program was completed on March 10th, 1972.

The survey was conducted by Century Geophysical Corporation Of Canada, Party 32, under the direction of Party Manager Mr. H. Tchir. Field operations were supervised by Mr. J. Grasby, for Century Geophysical, and by Mr. R. Comer of Comer & Wilson, Geophysical Consultants for Canada Southern Petroleum Ltd.

A general reconnaissance program was assigned consisting of two northwest/southeast lines and one intersecting north/south line.

Line 1 and the west end of Line 2 from S.P. 60 to S.P. 48 were shot with 600% subsurface coverage. The remainder of Line 2 and all of Line 3 were shot with 400% subsurface coverage.

A total of 13.5 miles of subsurface coverage was obtained during the survey, with a total of 141 shots taken from 136 shot point locations, for an average of 27 shot points on each of the five recording days.

The program was recorded on a turnkey contract basis.

## B. OPERATIONS

### 1. General Accessibility

#### a.) Surface Conditions

Forest cover was generally medium to light on most parts of the lines, with extensive muskeg areas of scrub trees and muskeg on the east end of Lines 1 and 2.

Approximately three feet of snowcover existed in the area. The weather was generally clear and cold during the operating period. Some problems were experienced in crossing the LaBiche River where up to three feet of water was flowing over the ice, with temperatures of 35 degrees below zero.

None of the area was under cultivation.

#### b.) Topography

The program was situated on a generally level area, immediately east of the Liard Mountain Range and just south of the Kotanelee



River. Lines 1 and 2 were shorter than originally assigned due to the extremely rugged terrain encountered at the west end of each line. Some steep hills were found on Line 3 with deep canyons at the intersection of Line 2 and 3, and on the west end of Line 2.

c.) Logistics

Access to the project was gained via the Simpson Trail running north from Fort Nelson for approximately 80 miles, then west on the Beaver River Road for 70 miles to the Beaver River Airstrip at 124° 15' West and 59° 56' North, then north on a pipeline right-of-way for approximately 24 miles to the intersection of Line 1.

Field operations were conducted from a campsite located at 60° 01' 30" North and 124° 00' West.

The pipeline right-of-way provided an excellent access route between the campsite and line locations during the initial stages of the program. As work was completed on the pipeline this route became less accessible due to the construction of drainage ditches and the removal of fills on the right-of-way. All traffic was advised on March 8th, to be off the right-of-way by March 11th, due to high pressure testing of the line scheduled to start at that time.

When it appeared doubtful the program would be completed in the time remaining, the subsurface coverage was changed to 400% reducing

drilling requirements by one-third, and enabling the complete surface coverage to be obtained as assigned, prior to March 11th.

Communications between the field units and base camp were maintained by mobile radio. A single side band radio was installed in the base camp for communication with Calgary via the telephone system. A mobile telephone was mounted in the Party Manager's unit to provide greater flexibility.

Radio reception varied from good to very poor; with the best reception period usually occurring in mid-afternoon, with occasional periods of good reception extending from mid-morning to late in the evening. Mobile telephone reception was good from all parts of the area.

Crew supplies were normally obtained from Fort Nelson, a daily air service and thrice weekly bus service was available between Fort Nelson and Calgary.

2. Surveying

a.) Bulldozing

Two D8 bulldozers and a D7 E bulldozer were contracted on an hourly basis from Ardill's Construction of Fort St. John, B.C. for

line cutting.

A total of 16.0 miles of new cut line were opened during the survey.

b.) Line Cleanup

Line cleanup operations were contracted to Line Loppers Ltd. of Edmonton. Some erosion control work was done by the line cutting contractor prior to the bulldozers leaving the area.

c.) Permits

All lines shot were located on Crown Lands. The usual permission was obtained from the British Columbia Department of Mines and Petroleum Resources, and the local Forestry Officials were contacted prior to the commencement of field operations.

d.) Instruments

Horizontal and vertical control was determined with the use of a Wild T-16 Theodolite.

e.) Bench Marks

The survey was established from the North Beaver River Well 1-27. A control line was run along the pipeline right-of-way to the intersection of Line 1. Side shots taken to bench marks on the pipeline and also at the LaBiche River, however, elevations were

not available for these bench marks at the time of the survey. The control line was run back to the 1-27 well with a vertical mistie of 4.2 feet.

3. Drilling

a.) Equipment

One auger drill and two conventional drills were normally employed. All units were owned and operated by Century Geophysical. A spare water truck, owned by Century, was used when drilling at locations some distance from the water supply on the LaBiche River.

b.) Drilling Conditions

Drilling conditions were generally fair to good. Muskeg and soft clay were the normal hole log on the east end of Lines 1 and 2. In the middle of Line 2 a number of holes encountered soft clay and sand. The remainder of the holes were drilled mainly into hard clay and shale, with some sandstone on the west end of the lines and on portions of Line 3.

No flowing holes were encountered.

4. Recording

a.) Equipment

All data were recorded on a TIAC, 21 track, DFS-III, binary

gain, 24 trace digital recording system.

Nine, 10 cycle Mark L-10 geophones at 20-foot intervals were employed for each trace.

Twenty sections of 900-foot cables, with a take out interval of 220 feet, and a 36 trace capacity were used on the line.

b.) Shooting Parameters

A routine shot point layout consisted of a single hole drilled to sixty feet, and preloaded with a ten pound charge.

Shot points were normally located on the station at intervals of 440 feet on Line 1 and the west end of Line 2, and at intervals of 660 feet for the remainder of the program.

c.) Spread Design

A standard split spread design was used with a trace interval of 220 feet. Traces 1 and 24 were 2640 feet from the shot point, with traces 12 and 13 at a distance of 220 feet.

d.) Equipment Adjustments

- |                   |                  |
|-------------------|------------------|
| 1) Record Filter: | 12 (36 db) - 124 |
| 2) Sample Rate:   | 2 Milliseconds   |
| 3) Record Length: | 4 Seconds        |

- 4) Gain Mode: Binary
- 5) Gain Rate: Medium

e.) Experimentation

Charge size were varied from five to twenty pounds on Line 1, with little change in reflection quality. A number of holes were drilled to eighty feet at various locations in an attempt to reach a firmer shooting medium, and provided a generally stronger signal level, suggesting that deeper holes would be advantageous in some portions of the area.

f.) Record Quality

Overall record quality was fair to good, with some poorer data obtained in the flat muskeg areas. Particularly poor data was obtained from a short section in the centre of Line 2 where the hole logs indicated sand and soft clay to eighty feet.

5. Camp & Catering

Seven trailers were used to house and supply field personnel. One kitchen-diner, one utility, two 12-man sleepers, and two 8-man sleepers with office or storage space, and one power plant workshop trailer. All units were rented from Nodwell Brothers of Calgary.



Catering facilities were provided by Crown Caterers of  
Calgary.

6. General

All field data were assembled and delivered to the office  
of Comer & Wilson for computing and data processing.

Respectfully submitted by:

CENTURY GEOPHYSICAL CORPORATION OF CANADA



J.K. Grasby  
SUPERVISOR

APPROVED: \_\_\_\_\_

H. Evans, P. Geoph.

JKG/jp

### STATISTICAL DATA

DATES:	Start of Bulldozing	March 1st, 1972
	Start of Drilling	March 3rd, 1972
	Start of Recording	March 5th, 1972
	Job Completed	March 10, 1972

#### PRODUCTION:

Number of Miles Shot	13.5
Number of Shots	141
Number of Shot Points	136
Average Daily Production	27 shot points

#### EQUIPMENT:

Recording Crew	-	One four-wheel-drive recording truck
		Two four-wheel-drive line trucks
		One four-wheel-drive survey truck
		One four-wheel-drive shooting truck
		One four-wheel-drive Party Mgr.'s truck
Drill Crew	-	Two truck-mounted Conventional Drills
		One truck-mounted Auger Drill
		Two truck-mounted Water Trucks

#### PERSONNEL:

Party Manager	-	Mr. H. Tchir
Operator	-	Mr. D. Sandboe
Shooter	-	Mr. T. Reindl
Surveyor	-	Mr. G. Torgerson
(In addition: 8	-	Recording Crew Helpers
6	-	Man Drill Crew
4	-	Man Camp Staff